Order No. MAC0208039C1

Service Manual

Room Air Conditioner

CW-XC100VK
CW-XC120VK

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CONTENTS

	Page
1 Functions	2
2 Product Specifications	4
3 Dimensions	5
4 Refrigeration Cycle Diagram	6
5 Block Diagram	6
6 Wiring Diagram	7
7 Air Conditioner Performance Evaluation	7
8 Troubleshooting Guide	8
9 Operation Details	10
10 Operating Instructions	13
11 Installation Instructions	18
12 Care and Maintenance	22
13 Servicing Information	23
14 Technical Data	25
15 Electronic Circuit / Main	26
16 Electronic Circuit / Indicator Complete	27
17 Electronic Circuit Diagram	28
18 Exploded View	31
19 Replacement Part List	32

Panasonic

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1 Functions

1.1. Remote Control

OPERATION — **Operation OFF/ON**

MODE — **Operation Mode Selection**

- Cooling Operation Mode or Fan Operation Mode.

FAN SPEED — **Fan Speed Selection**

- High Fan Speed or Low Fan Speed.

AIR SWING — **Horizontal Airflow Direction Control**

- Automatic Air Swing ON or OFF for horizontal airflow.

JET MODE — **Jet Mode Operation OFF/ON**

- Jet Mode will operate for 15 minutes only, after that it will shift back to previous operation mode.

TIMER — **Timer Operation Setting**

- To set delay ON/OFF Timer.

TEMP/ TIMER — **Room Temperature and Timer Setting**

- Cooling Operation
  - Temperature Setting (16˚C ~ 30˚C).
- Timer Setting
  - Timer Setting (1 ~ 12 hours).

SET/ CANCEL — **Delay ON/OFF Timer**

- To start delay ON/OFF setting or cancellation.

1.2. Main Unit

OPERATION
Operation OFF/ON

Remote Control Signal Receiving Sound
- Can be enable/disable by pressing down Operation OFF/ON button for 10 seconds.

Operation Indicator Light (LED'S)
- **MODE**
  COOL (Orange)..... Lights up in Cooling Mode Operation.
  FAN (Orange)..... Lights up in Fan Mode Operation.
- **FAN SPEED**
  HIGH (Orange)..... Lights up in High Fan Speed Operation.
  LOW (Orange)..... Lights up in Low Fan Speed Operation.
- **TIMER** (Orange)..... Lights up in Timer Setting.
- **JET MODE** (Red)..... Lights up in Jet Mode Operation.

MODE
Operation Mode Selection
- Cooling or Fan Mode.

FAN SPEED
Fan Speed Selection
- High or Low Speed.

AIR SWING
Airflow Direction Control
- Automatic Air Swing ON or OFF for horizontal airflow. (Manually adjusted by hand for vertical airflow.

JET MODE
Jet Mode Operation OFF/ON
- Reaches the desired room temperature quickly (This operation automatically will be running under Super High Fan Speed for 15 minutes only).

TIMER
Timer Operation Setting
- To set delay ON/OFF Timer.

TEMP/ TIMER
Room Temperature and Timer Setting
- Cooling Operation
  - Temperature Setting (16˚C ~ 30˚C).
- Timer Setting
  - Timer Setting (1 ~ 12 hours).

SET/ CANCEL
Delay ON/OFF Timer
- To start delay ON/OFF setting or cancellation.

Random Auto Restart Control
- Random auto restart control after power failure at previous setting mode.

Freeze Prevention Control
- Freeze prevention control for the Evaporator. (Cooling Operation Only)

Starting Current Control
- Fan Motor is delayed for 1.6 seconds when compressor starts simultaneously.

Time Delay Safety Control
- Restarting is inhibited for approximately 3 minutes.

7 Minutes Time Save Control
- Cooling Operation Only

60 Secs. Forced Operation Control
- Once the compressor is activated, it does not stop within the first 60 seconds. However, it stops immediately with remote control stop signal.

Compressor Reverse Rotation Protection Control
- Restarting is inhibited for approximately 3 minutes.

Overload Protector

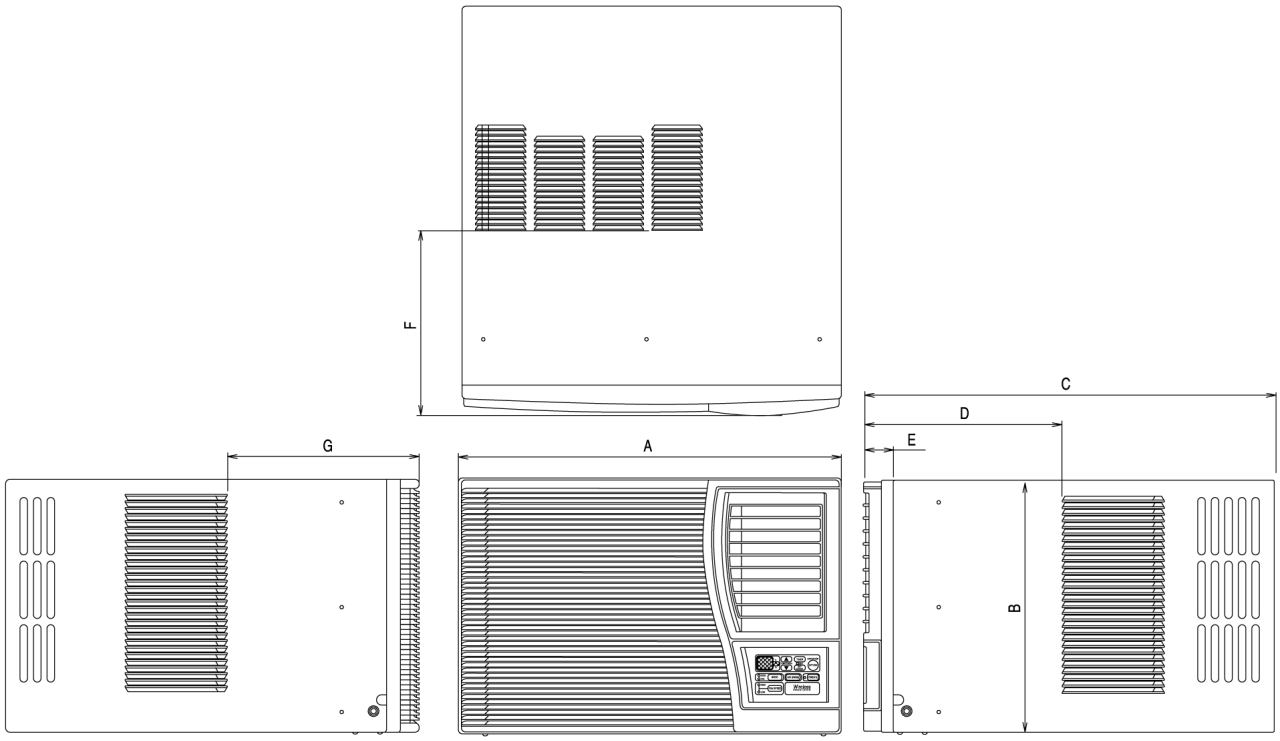
2 Product Specifications

		Unit	CW-XC100VK	CW-XC120VK
Phase		Ø	Single	Single
Voltage		V	115	115
Frequency		hZ	60	60
Cooling Capacity		kW Btu/h	2.93 10,000	3.37 11,500
Running Current		A	8.7	9.8
Input Power		W	0.98k	1.12k
EER		(w/w) Btu/h	- 10.2	- 10.2
Starting Current		A	35	48
Compressor Output		W	0.70K	0.75k
Fan Motor Output		W	54	54
Noise Level	Indoor (High / Low)	db(A)	50 / 46	51 / 47
	Outdoor (High / Low)	db(A)	57 / 54	58 / 55
Moisture Removal		L/h Pt/h	1.2 2.5	1.4 3.0
Air Circulation	Indoor	m^3/min (ft^3/min)	9.1 (320)	9.3 (330)
	Outdoor	m^3/min (ft^3/min)	14.7 (520)	14.7 (520)
Dimensions	Height	mm inches	375 (14-25/32)	375 (14-25/32)
	Width	mm inches	560 (22-1/16)	560 (22-1/16)
	Depth	mm inches	606 (23-7/8)	606 (23-7/8)
Net Weight		kg lb	35 77	35 77
Gross Weight		kg lb	39 86	39 86
Refrigerant (R-22)		g oz	450 15.9	550 19.4

- Specifications are subject to change without notice for further improvement.

3 Dimensions

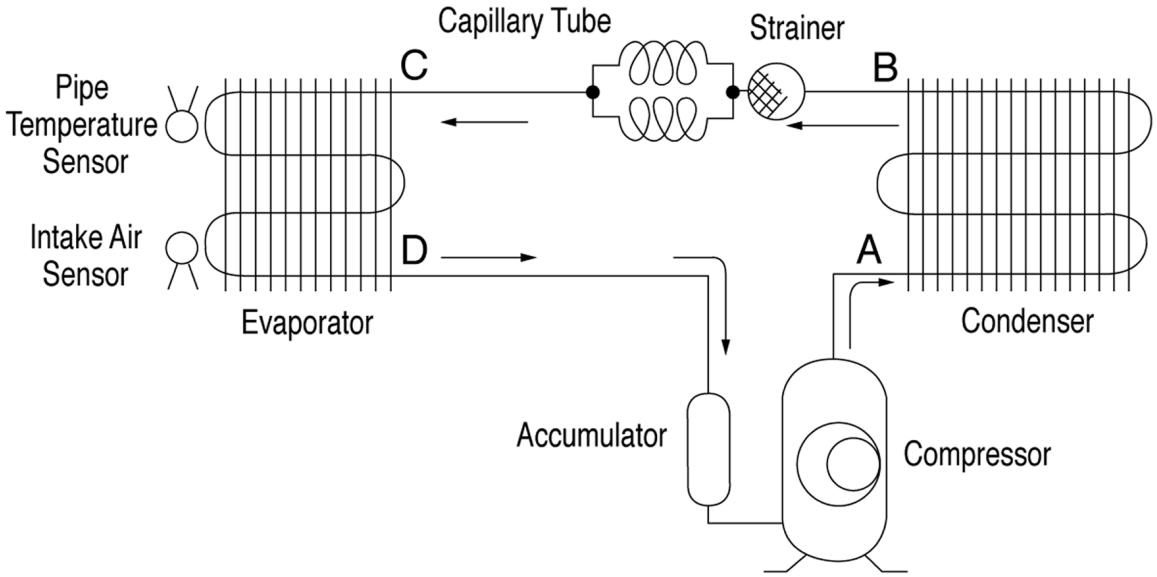
3.1. Top View, Front View and Side View



3.2. Unit

Item	Unit: Inch (mm)
A - Width	22-1/16” (560)
B - Height	14-25/32” (375)
C - Depth	23-7/8” (606)
D	11-9/16” (294)
E	1-13/16” (46)
F	11-3/32” (281.6)
G	11-3/32” (281.6)

4 Refrigeration Cycle Diagram



4.1. CW-XC100VK

Item	Pressure (MPa)		Temperature (°C)	
	Lower	Upper	Lower	Upper
A	1.85	2.05	61	76
B	1.82	2.02	36	46
C	0.59	0.65	9	14
D	0.57	0.63	10	17

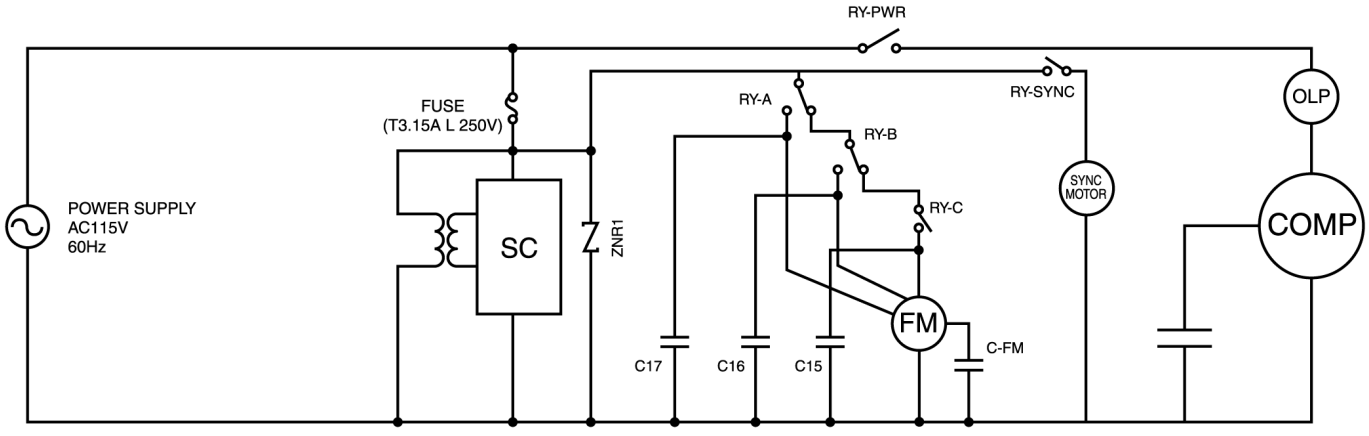
Note: Indoor temperature at 27°C (DB), 19°C (WB) and Outdoor at 35°C (DB), 24°C (WB) for Cooling.

4.2. CW-XC120VK

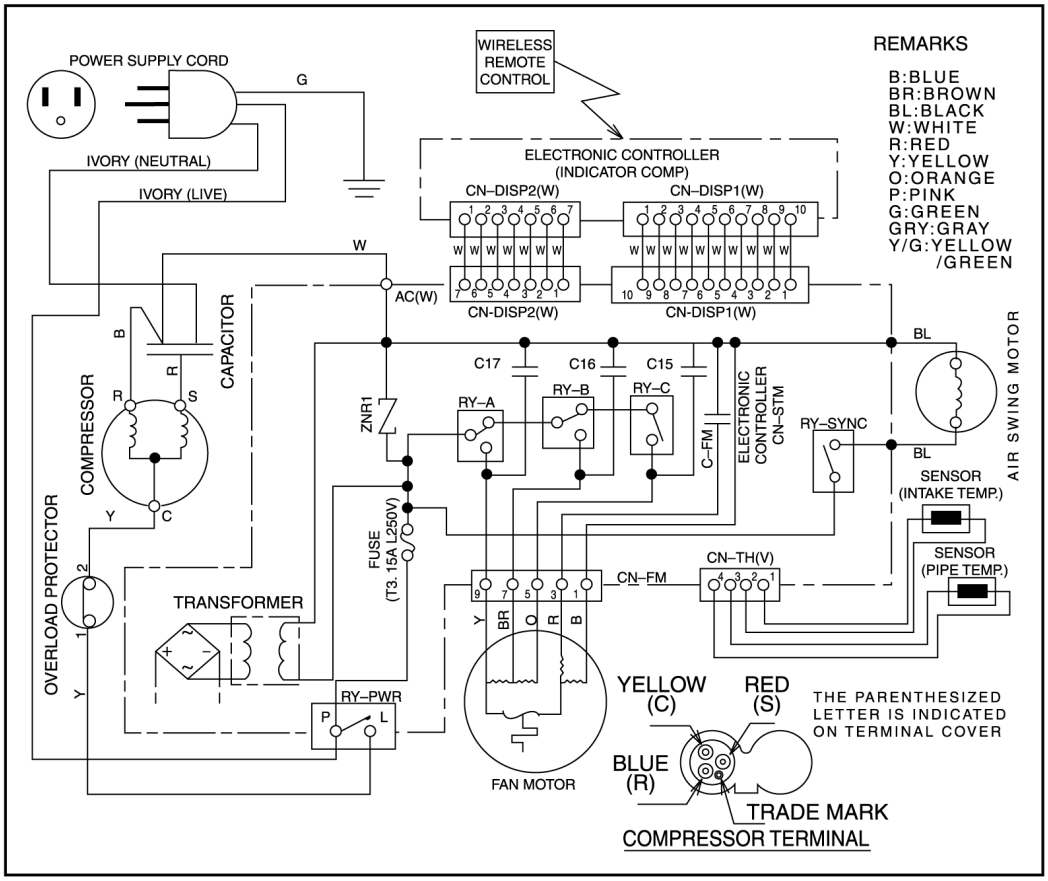
Item	Pressure (MPa)		Temperature (°C)	
	Lower	Upper	Lower	Upper
A	1.90	2.10	64	80
B	1.87	2.07	36	46
C	0.57	0.63	7	13
D	0.53	0.59	9	15

Note: Indoor temperature at 27°C (DB), 19°C (WB) and Outdoor at 35°C (DB), 24°C (WB) for Cooling.

5 Block Diagram



6 Wiring Diagram



6.1. Resistance of Fan Motor windings and the rated Capacitor

Model	CW-XC100VK	CW-XC120VK
Connection	CWA951216	CWA951215
Blue - Yellow	34.6 Ω	34.8 Ω
Yellow - Brown	2.3 Ω	2.5 Ω
Brown - Orange	13.7 Ω	14.8 Ω
Red -Yellow	36.6 Ω	37.6 Ω

6.2. Resistance of Compressor windings and the rated Capacitor

Model	CW-XC100VK	CW-XC120VK
Connection	CWB09623	CWB09624
C-R	0.690 Ω	0.724 Ω
C-S	2.429 Ω	2.168 Ω
Capacitor	CWA312066 (40μF, 250VAC)	CWA312067 (45μ, 250VAC)

Note: Resistance at 20°C of Ambient Temperature.

7 Air Conditioner Performance Evaluation

Suction & Discharge Air Temperature Difference	Current	Determination	Remedy
• 8°C and over (14.4°F)	• As specified.	• Nothing wrong.	• None.
• 8°C and over (14.4°F)	• Higher than specified.	• Nothing wrong, outdoor temperature is too high, heat radiation is not efficient.	• Improve heat radiation.
• Under 8°C (14.4°F)	• Higher than specified.	• Something is preventing heat radiation.	• Excessive amount of refrigerant. • Improve heat radiation.
• Under 8°C (14.4°F)	• Lower than specified.	• Leakage of refrigerant or refrigerant system is blocked.	• Locate and repair leak. • Flush refrigeration cycle.
• Under 8°C (14.4°F)	• Higher than specified by 50%.	• Compressor defect.	• Replace the compressor.

Note: Room air humidity is relatively higher, the temperature difference will be smaller.

8 Troubleshooting Guide

⚠ Warning: Disconnect unit from electrical power supply before making any electrical checks.

Trouble	Check	Result	Causes	Remedy
Fan Motor and Compressor won't run.	• Supply Voltage	• Less than 10% by Rated.	• Temporary or Permanent?	• Consult ELECTRICIAN, if permanent.
			• Customer Restarted unit immediately without waiting 3 minutes.	• WAIT FOR 3 MINUTES.
	• Fuse Box or Circuit Breaker.	• Open Contacts.		• Repair Open Circuit.
	• Power cord or Wiring Harness.	• Pulled loose or Shorted.		• Repair or Replace it.
	• Temperature Setting.	• Higher than room temperature		• Set it LOWER.
Fan motor won't run (Compressor run).	• Objects around Fan.	• Locked Fan.	• Fan Hitting Cowling.	• Adjust Fan position setting screw.
			• Foreign Materials.	• Remove Foreign Materials.
			• Frozen Bearings.	• Replace Fan Motor.
	• RESISTANCE between Wires.	• Shorted / Open circuit.	• Shorted or Burned out.	• Replace Fan Motor.
	• Capacitor Fan Motor.	• OHM Meter doesn't Deflect.	• Capacitor Defect.	• Replace Capacitor Fan.
Compressor won't run (Fan run).	• Temperature setting.	• Higher than room temp.	• Winding Coil touched to the compressor shell.	• Set it lower.
	• RESISTANCE between Terminal and the Compressor Body.	• Shorted.	• Rear Shorted or Burnt out.	• Replace Compressor.
	• RESISTANCE between Terminals.	• Shorted.	• Rear Shorted or Burnt out.	• Replace Compressor.
	• Overload Protector.	• Infinity between Terminals.	• Overload Protector defect.	• Replace Overload Protector.
	• Capacitor Compressor.	• OHM Meter doesn't deflect.	• Capacitor defect.	• Replace Capacitor Compressor.
	• Thermostat.	• No click heard.	• Thermostat defect.	• Replace Thermostat.
Air Swing won't run	• Air Swing Switch.	• OFF position.		• Set it ON.
		• No contact at position.	• Open circuit	• Replace Air Swing Switch.
	• Resistance between wires.	• OHM Meter doesn't deflect.	• Shorted or open circuit.	• Replace Air Swing Motor.

Trouble	Check	Result	Causes	Remedy
Insufficient cooling.	• Temperature Setting.	• Higher than room temperature.	• Reduces capacity.	• Set it lower.
	• Ventilation door open.	• Open.	• Restricted air circulation.	• Close ventilation door.
	• Air filter dirty.	• Clogged or dirty.	• Restricted Heat Exchanger.	• Clean or replace Air Filter.
	• Location of installation.	• Sunlight hitting outdoor side.	• Restricted Heat Exchanger.	• Consider building an AWNING.
	• Evaporator/Condenser Coil obstructed.	• Obstacles. • Clogged or dirty.	• Restricted air circulation.	• Remove obstacles or reinstall unit. • Clean the coils.
	• Unit capacity for the room too small.	• Not satisfied.		• Replace the unit with bigger one.
	• Temperature difference and running current.	• REFER TO PERFORMANCE EVALUATION.	• Leakage of refrigerant or refrigeration system is blocked.	• Locate repair leak. • Flush refrigeration cycle.
Noise	• Source of Noise	• Vibration.	• Faulty installation.	• Reinstall unit or Reinforce the installation.
		• Intermittent Noise.	• Fan hitting objects.	• Adjust Fan position or remove foreign materials.
			• Refrigerant tubing touching each other.	• About 1/2” Clearance needed.
			• Fan splashing Drain Water.	• Remove drain plug and mount a drain pan to remove the water. • Set the Drain outlet downward, so that the Drain water can run off.
Water dripping inside room.	• Unit installation.	• Tilted to inside room.	• Restricted run off.	• Tilt unit to outside slightly.
	• Drain Tray-Styrofoam pieces blocking drain channel.	• Clogged.	• Clogged or blocked.	• Remove the foreign materials.
Frozen Evaporator	• Temperature setting.	• Set too low for ambient conditions.	• Outdoor temperature low (Night time).	• Set the Main Control knob to Fan to melt ice and set the Temperature Control to higher temperature.
	• Air Filter/Evaporator.	• Clogged or Dirty.	• Restricted air circulation.	• Clean Air filter/Evaporator.
	• Temperature difference and running current.	• REFER TO PERFORMANCE EVALUATION	• Leakage of refrigerant or refrigeration system is blocked.	• Locate and repair leak. • Flush refrigeration cycle.

9 Operation Details

9.1. Fan Mode Operation

- Fan operation only. Fan in operation according to Remote Control or Main Unit (Touch Control Panel) setting.

9.1.1. Manual Setting of Fan Speed

- Basic Fan Speed can be manually adjusted (Lo or Hi) by using the Fan Speed Selection Button/Pad at Remote Control or Main Unit (Touch Control Panel).

9.2. Cooling Mode Operation

- Cooling in operation according to Remote Control or Main Unit (Touch Control Panel) setting.

9.2.1. Time Delay Safety Control (3 minute)

- When the compressor is stopped by Operation Switch at the Remote Control or Main Unit (Touch Control Panel), it restart after 3 minutes when the Operation Switch at the Remote Control or Main Unit (Touch Control Panel) is turned ON.
- When the setting temperature is reached during cooling operation, the compressor stops and it will not start for 3 minutes.
- Protection of compressor to balance the pressure in the refrigeration cycle for 3 minutes.

9.2.2. 7 minutes Time Saved Control

- The compressor will start automatically if it has stopped for 7 minutes even if the room temperature is between the compressor ON temperature and OFF temperature.

9.2.3. Starting Current Control

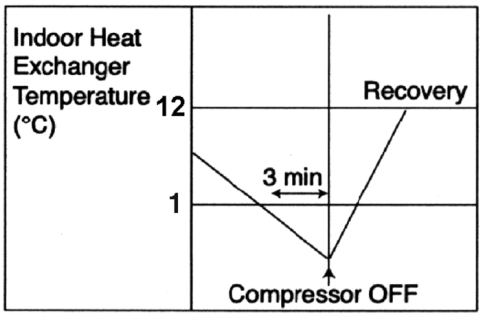
- When the compressor and fan motor are simultaneously started, the fan motor will operate 1.6 seconds later.

9.2.4. Freeze Prevention Control

If the temperature of the indoor heat exchanger falls continuously below 10°C for 3 minutes or more, the compressor turns off to protect the heat exchanger from freezing. The fan speed setting remains the same.

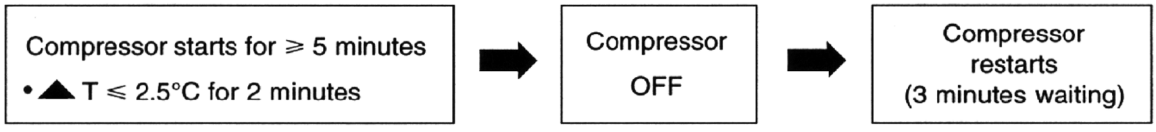
Compressor restarts when the heat exchanger temperature rises to 12°C (Recovery).

*3 minutes waiting of Time Delay Safety Control is valid for Cooling Operation.



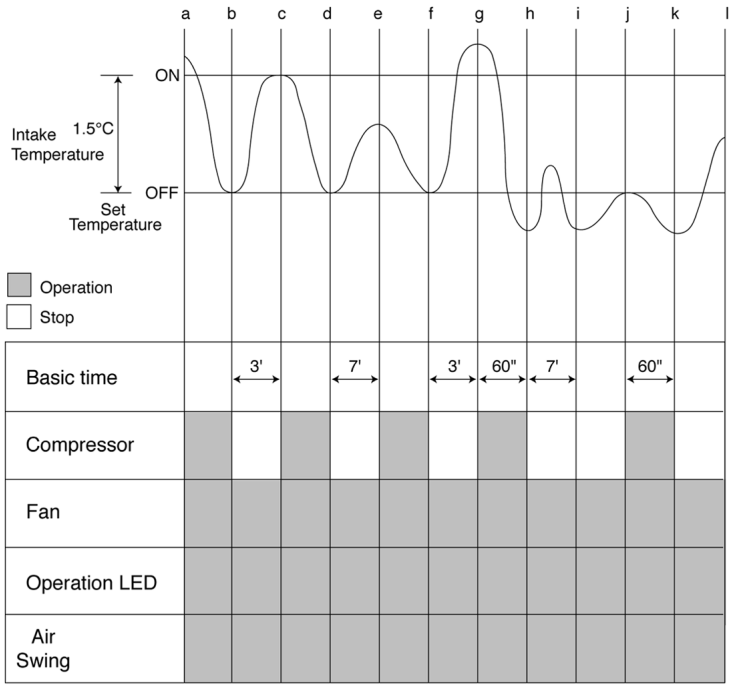
9.2.5. Compressor Reverse Rotation Protection Control

- If the compressor is operating continuously for 5 minutes or longer and the temperature difference between intake air and heat exchanger is 2.5°C or less for 2 minutes, compressor will stop and restart automatically (Time Delay Safety Control is valid).



• ▲T = Intake air temperature – Indoor heat exchanger temperature
This is to protect reverse rotation of the compressor when there is an instantaneous power failure.

9.2.6. Cooling Operation Time Diagram



< Description of operation >
b – c : Time Delay Safety Control (waiting for 3 minutes).
d – e : 7 minutes Time Saved Control.
g – h : 60 sec. forcible operation.

9.3. Jet mode Operation

- Purpose of this operation is to obtain the setting temperature quickly.
- When the Jet mode is set during Cooling Operation, the set temperature will be automatically decreased 3°C against the present setting temperature (Lowest limit temperature: 16°C).
- This operation automatically will be running under Super High Fan Speed.
- Sound emitted by the unit will be increased during Jet mode operation due to increased of air volume.
- Jet mode will operate for 15 minutes only, after that it will shift back to previous operation mode.
- Jet mode will stop if:-
  - Jet mode button/Pad is pressed again.
  - Jet mode operation has run for 15 minutes.
  - Stopped by ON/OFF switch.
  - Timer OFF activates.

9.4. Random Auto Restart Control

- If there is a power failure, operation will be automatically restarted after 3 to 4 minutes when the power is resumed.

  It will start with previous operation mode and airflow direction (Time Delay Safety Control is valid) as the operation was not stopped by Remote Control or Main Unit (Touch Control Panel).
- Restart time is decided randomly with 5 parameters:-
  - Intake air temperature.
  - Setting temperature.
  - Fan speed.
  - Air Swing blade position.
  - Indoor heat exchanger temperature.
- Auto Restart Control is not available when Timer is set.
- If Jet mode operation is set during power failure, Jet mode operation will not start automatically along with previous operation mode after power resume.
- This control can be omitted by open the circuit JX1.

9.5. Fan Speed Control

- Manual Fan Speed Control

  Basic fan speed adjustment (2 setting, from Lo to Hi) can be carried out by using the Fan Speed Selection Button/Pad at the Remote Control or Main Unit (Touch Control Panel).

Mode	Fan setting		Fan Speed		
			SHi	Hi	Lo
Cooling	Manual	Normal		o	o
		Jet	o (15 minutes)		
Fan	Manual	Normal		o	o
		Jet	o (15 minutes)		

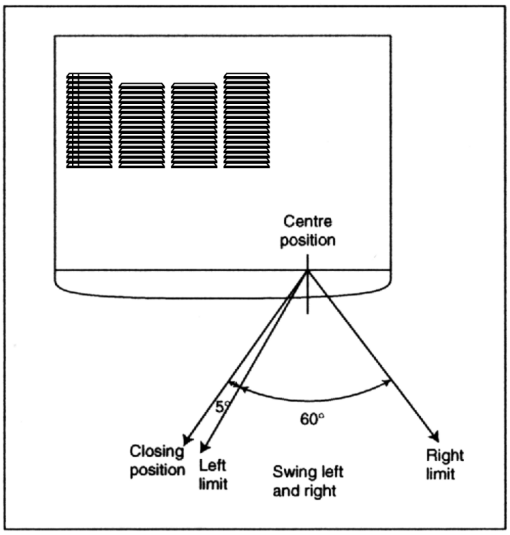
9.6. Airflow Direction Control

9.6.1. Horizontal Airflow Direction

When Air Swing Button/Pad is pressed with Remote Control or Main Unit (Touch Control Panel) in the Auto Airflow, the airflow direction louver swings side to side within the full swing range as shown in the “Diagram”.

The louver can be adjusted by pressing the Button/Pad again at the Remote Control or Main Unit (Touch Control Panel) to the desired louver position.

When stopped with Remote Control or Main Unit (Touch Control Panel), the louver vane is reset, and stopped at the closing position.



“Diagram”

9.6.2. Vertical Airflow Direction

- The upward and downward airflow direction vane can be adjusted manually by hand.

9.7. Remote Control Signal Receiving Sound

- To switch off the beep sound.

  Press the “Operation OFF/ON Pad” at the main unit continuously for 10 second or more.

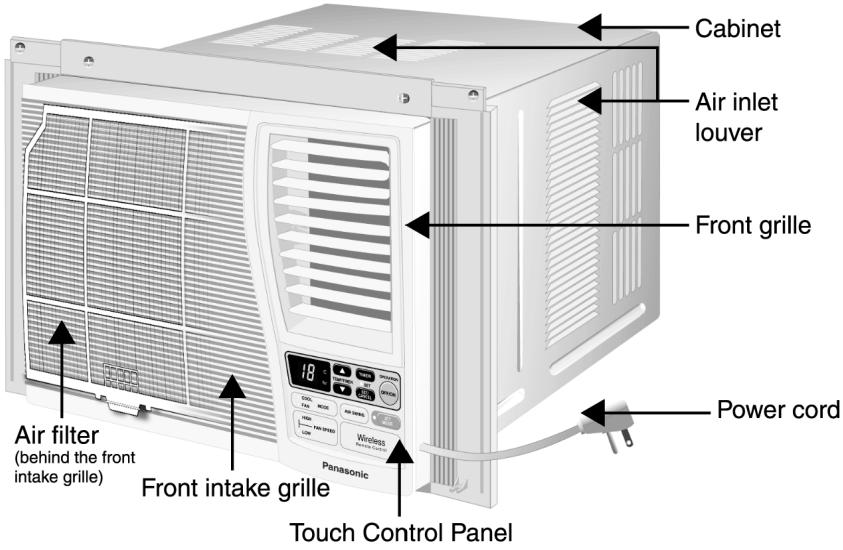
  Repeat the above if you want to switch ON the “beep” sound.

  *However, if the “Operation OFF/ON Pad” have been pressed, the previous operation mode will be activated. If you do not require this operation, you may change it by using the Main Unit (Touch Control Panel).

10 Operating Instructions

10.1. Parts Identification

10.1.1. Main Unit

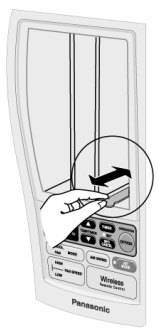


10.1.1.1. Vertical Airflow Direction Vane

Airflow direction adjustment up-down.

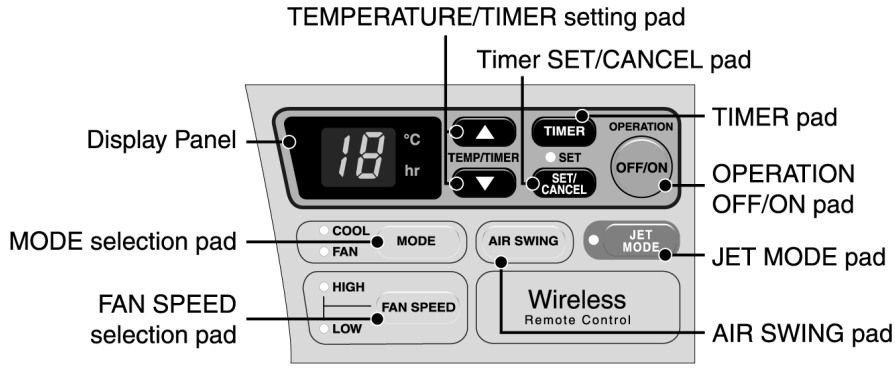
- The vertical airflow direction vane is controlled by rotating the horizontal vane forward or backward.

10.1.1.2. Ventilation Lever



The ventilation lever must be in **CLOSE** position in order to maintain the best cooling conditions.
When fresh air is necessary in the room, set the ventilation lever to the **OPEN** position. The damper is opened and room air is drawn out.

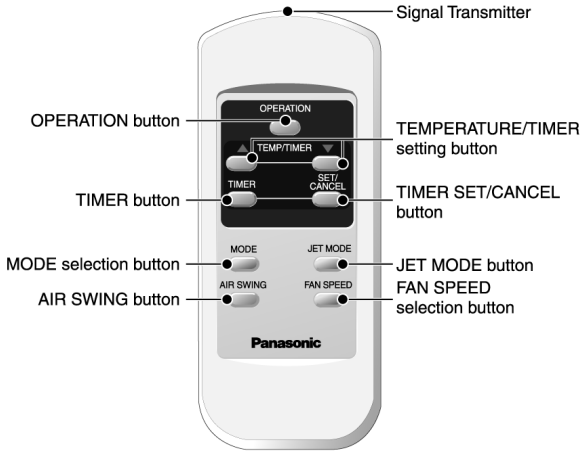
10.1.1.3. Touch Control Panel

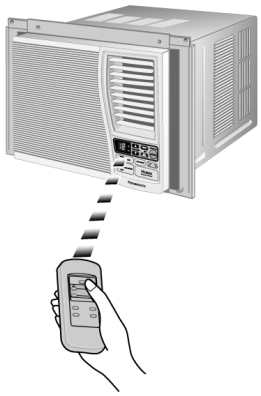


10.1.1.4. Types of Signal Sound

- One long “Beep” and one short “Beep”. (Sound from the main unit.)

10.1.2. Remote Control



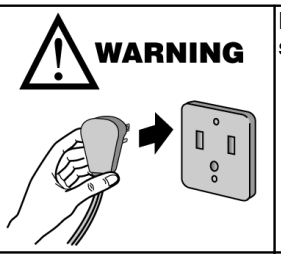


* Maximum distance: 10 m

Be sure to observe the following:

- Aim remote control at the control panel on air conditioner when operating.
- Do not drop or throw the remote control.
- Do not place the remote control in a location that is exposed to direct sunlight or next to a heating unit or other heat sources.

10.2. Preparation Before Operating



Ensure that the power plug is securely inserted.

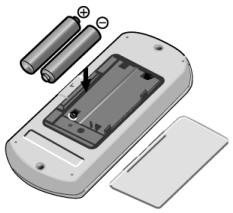
- A loose plug may cause a fire or an electric shock.

NOTES

- If the unit is not going to be used for an extended period of time, remove the power plug. Otherwise, approximately 2.5W of electricity will be used even if the unit has been turned off using the remote control.
- If operation is stopped, and to be restarted immediately, the unit will resume operation only after 3 minutes.

10.2.1. How to Insert Batteries

(1) Open the cover.



(2) Insert the two batteries.

(3) Close the cover.

Caution:

Do not use rechargeable (Ni-Cd) batteries because such batteries difter from the standard dry cell batteries in shape, dimension and performance.

10.2.2. About the Batteries

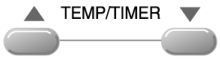
- The batteries can be used for approximately one year.
- Be sure to replace the batteries with two new identical batteries.
- Remove the batteries if the air conditioner will not be used for an extended period of time.

10.3. Air Conditioner Operation

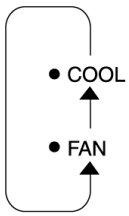
10.3.1. Operating the Unit

Touch Control Panel	Remote Control	Display	
			Start operation by pressing **OPERATION**. • The operation will turn on and the display panel will light up.
			To stop the operation, press the **OPERATION** again. • The unit will stop operating and the display panel light will turn off.

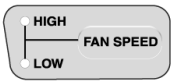
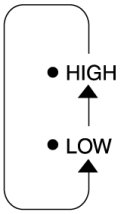
10.3.2. Setting Display Temperature

Touch Control Panel	Remote Control	Display	
		 Display will change according to the setting.	Press **TEMP/TIMER "Upward"** or **"Downward"** to set the display temperature. • The temperature can be set between 16°C and 30°C. Recommended temperature: 26°C ~ 28°C. **NOTES** • The latest temperature setting will be memorized and will appear on the display the next time it's turned on. • The display temperature selection is for display purpose only and does not indicate actual room setting temperatures. Your room temperature may not necessarily match the displayed temperature.

10.3.3. Selecting Operation Mode

Touch Control Panel	Remote Control	Indicator	
			Press **MODE** to select the desired operation. • The indicator will light up and a "beep" sound will indicate changing setting. **COOL mode** To set display temperature to your preference of cooling comfort. **FAN mode** To provide air circulation without cooling the room. During Fan operation, temperature setting cannot be selected.

10.3.4. Selecting Fan Speed

Touch Control Panel	Remote Control	Indicator	
			Press **FAN SPEED** to choose the speed level of the fan. • The indicator will light up and a "beep" sound will indicate changing setting. **NOTE** The latest fan speed setting will be memorized and the indicator will light up the next time the unit is turned on.

10.3.5. Adjusting Horizontal Airflow Direction

Touch Control Panel	Remote Control	Indicator	
		No indication will appear.	Press to select **AIR SWING**. • The air circulation will automatically move the horizontal louvres left and right for better air distribution around the room. **NOTE** Using your hands to adjust the direction may cause the louvres to malfunction. If this happens, stop operation immediately and restart.

10.3.6. Jet Mode Operation

Touch Control Panel	Remote Control	Display	
	JET MODE		To obtain set temperature quickly: • Press **JET MODE**. • To cancel this operation, press once more. • After **JET MODE** is selected, the operation will go on for 15 minutes, after that it will shift back to previous operation mode. • When the **JET MODE** is set during Cooling Operation, the set temperature will be automatically decreased 3°C against the present setting temperature (lowest limit 16°C). **NOTE** Sound emitted by the unit will be increased during **JET MODE** operation due to increased of air volume.

10.3.7. Setting The Off Timer

Touch Control Panel	Remote Control	Display	
	TIMER		When the air conditioner in operation: Press the **TIMER** button. • The **SET/CANCEL** indicator light will blink awaiting for setting.
			Press the **TEMP/TIMER "Upward"** or **"Downward"** button until the preferred hour of operation is reached.
	SET/ CANCEL	 	Press the **SET/CANCEL** button to complete the setting. At this time, the **SET/CANCEL** indicator light is steady instead of blinking. **NOTE** The hour reading will change back to the set temperature reading after 10 seconds (You can also revert to temperature setting immediately by pressing the **TEMP/TIMER "Upward"** or **"Downward"** buttons again).

10.3.8. Check Timer Setting During Off Timer

Touch Control Panel	Remote Control	Display	
	TIMER	 	Press the **TIMER** button to check the remaining programmed timer setting. • The figure will be displayed for 10 seconds then will automatically switch back to temperature setting. **NOTE** The timer figure will change according to the time remaining (if you set it to turn off 3 hours from now, the timer will show **"2"** when you check the timer an hour later).

10.3.9. Cancel Timer Setting During Off Timer

Touch Control Panel	Remote Control	Display	
	SET/ CANCEL		Press the **SET/CANCEL** button to cancel the timer setting. • The **SET/CANCEL** indicator light will turn off. However the temperature remains displayed.

10.3.10. Setting The On Timer

Touch Control Panel	Remote Control	Display	
TIMER	TIMER		Press the **TIMER** button. • The **TIMER** indicator light will blink awaiting for setting.
TEMP/TIMER	TEMP/TIMER		Press the **TEMP/TIMER "Upward"** or **"Downward"** button until the preferred hour of operation is reached.
SET SET/ CANCEL	SET/ CANCEL	 	Press the **SET/CANCEL** button to complete the setting. At this time, the **TIMER** indicator light is steady instead of blinking. **NOTE** The display will show the remaining hour to the start of the operation (if you set to turn on 3 hours from now, the timer will show **"2"** at an hour later). When set time is reached, the air conditioner starts the operation under the previous setting mode and the **TIMER** indicator will light off. Now, the previous set mode and the fan speed will light up. Simultaneously, the display will show the setting temperature.

10.3.11. Check Temperature / Mode / Fan Speed Setting During On Timer

Touch Control Panel	Remote Control	Display	
TIMER	TIMER	 	Press the **TIMER** button. The **TIMER** indicator light will blink and the previous temperature setting will be shown. Simultaneously, **MODE** and **FAN SPEED** indicator will light up. This indication will last for 5 seconds, and then the display will show the remaining time. **MODE** and **FAN SPEED** indicator light will turn off. At this time, the **TIMER** indicator light is steady instead of blinking.

10.3.12. Change Temperature/Mode/Fan Speed Setting During On Timer

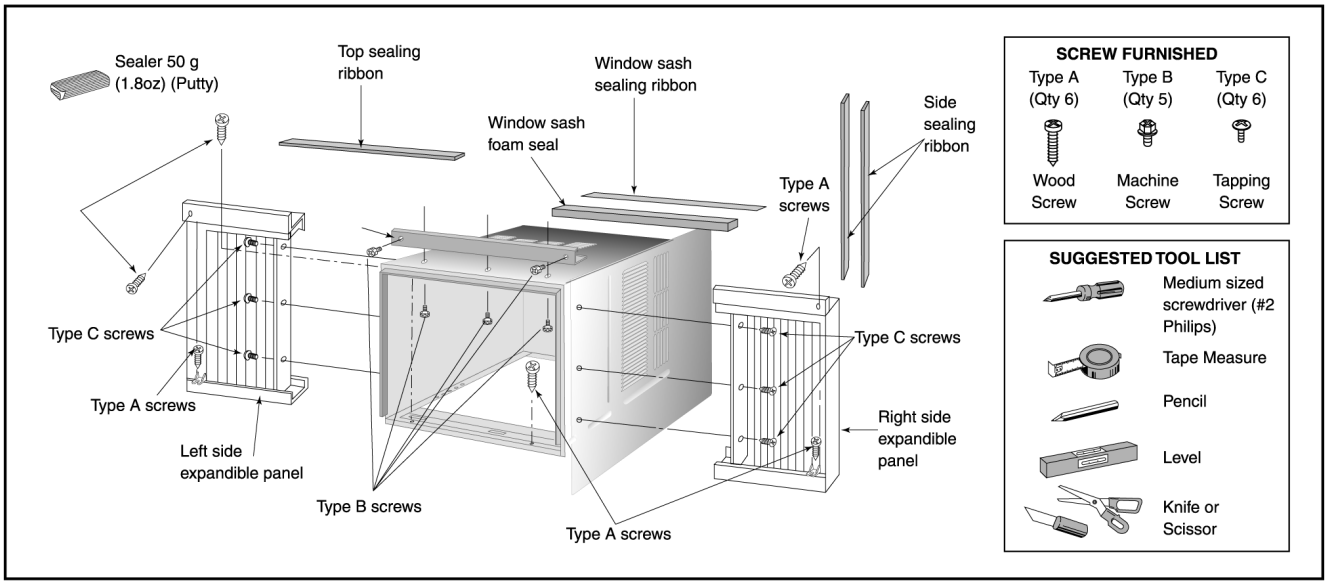
Touch Control Panel	Remote Control	Display	
SET SET/ CANCEL	SET/ CANCEL		Press the **SET/CANCEL** button to cancel the timer setting.
OPERATION OFF/ON	OPERATION		Press the **OPERATION**. Set the desired mode and the fan speed. Then press **OPERATION** button to stop operation.
TIMER	TIMER		Start the **TIMER** setting again by repeating the step from the "**Setting The On Timer**" procedures.

10.3.13. Cancel Timer Setting During On Timer

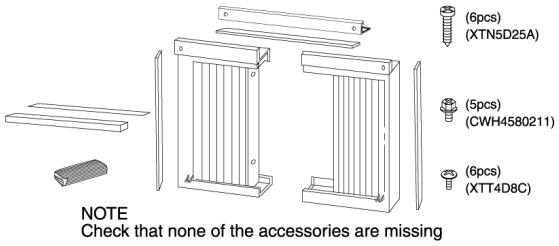
Touch Control Panel	Remote Control	Display	
SET SET/ CANCEL	SET/ CANCEL		Press the **SET/CANCEL** button to cancel the timer setting. The **SET/CANCEL** indicator light will turn off. To operate the air conditioner before reaching the set timer: • Press the **SET/CANCEL** to cancel the timer.
OPERATION OFF/ON	OPERATION		• Press the **OPERATION** button to turn on the unit.

11 Installation Instructions

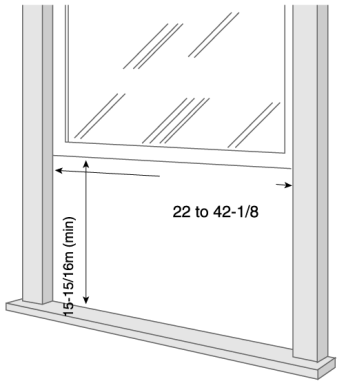
11.1. Installation Box Contents



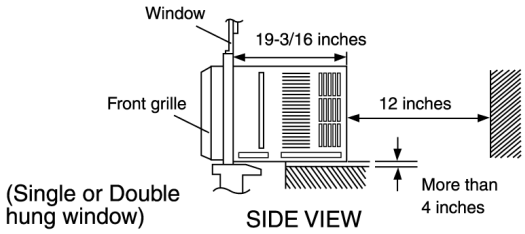
11.2. Accessories



NOTE
Check that none of the accessories are missing



11.3. Select The Best Location



11.4. Window requirements

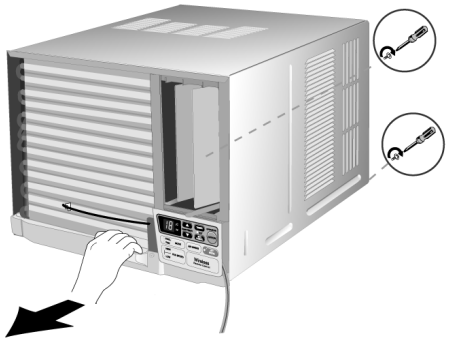
- Hot sun rays hitting the outside surface of the cabinet will create considerable heat load. If the outside of the cabinet is exposed to direct sunlight, consider building an awning to shade the cabinet while providing ample area for the heated air to be exhausted from the condenser (both sides) and the top.

This unit is designed for installation in standard double hung windows.

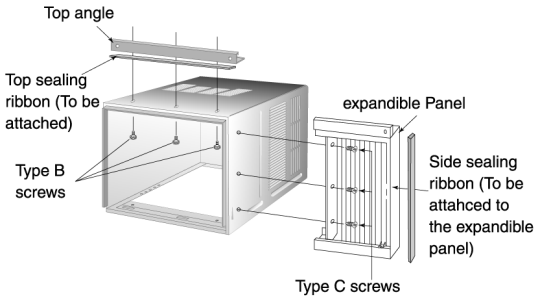
NOTE
The unit may also be installed “through the wall“. You should, however, observe standard carpentry practices and frame the opening without violating local ordinances.

11.5. Installation procedures

1. Remove the rear cabinet screws and save for later use.
2. Slide the chassis out from the cabinet.



11.6. How to Assemble the expandable Panels

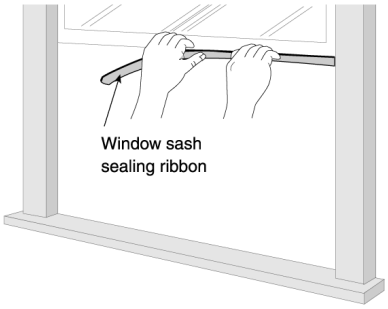

Top angle
Top sealing ribbon (To be attached)
expandible Panel
Type B screws
Side sealing ribbon (To be attahced to the expandible panel)
Type C screws

NOTE: This procedure applies to left and right of a assembling expandable panel.

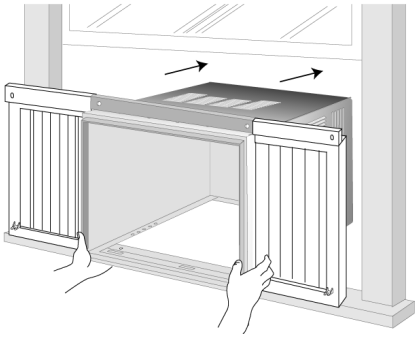
- Attach the top angle to the cabinet using screw type B (3pcs).
- Insert expandible panels to cabinet sides as shown.
- Secure the first fold of expansion panel to cabinet using screw typeC (3 each).

11.7. Cabinet Installation

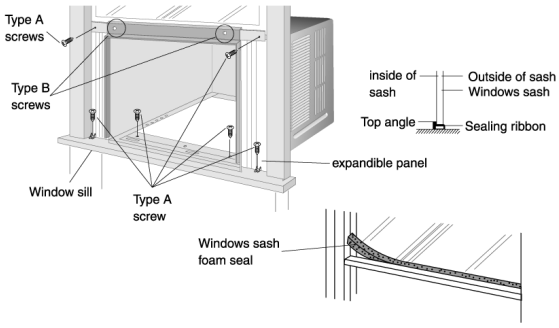
1. Cut the “Sealing Ribbon” to the proper length,and attach it along the bottom edge of the bottom window sash.



2. To prevent condensation water from dripping inside, the cabinet should be installed level or very slightly tilted to the outside.



3. Secure the cabinet using screws.

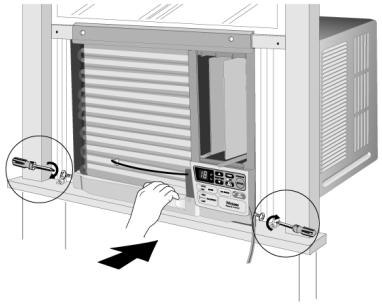


- Expand the expandable panel fully into the grooves of the window frame, secure the expandable panel, left right and top mounting frames to the bottom of the window sash using 6 screws
- Secure the cabinet using wood screws type A.
- Cut the window sash foam seal to the proper size and seal and the opening between the top of the inside window sash and the outside window sash.

  Note: If a gap exits between te unit and window sash, you may use “Sealer“ supplied with the installation kit for a better seal.

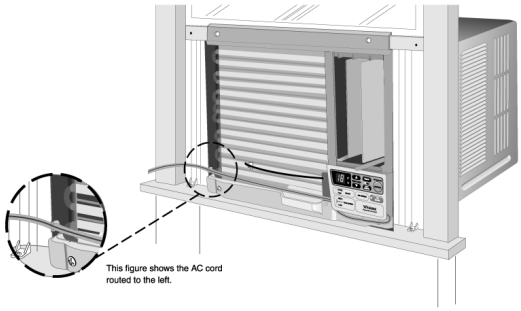
11.8. Chassis installation into the cabinet

1. Slide the chassis into the cabinet.
2. Reinstall the cabinet to chassis by using screws. (from rear cabinet).

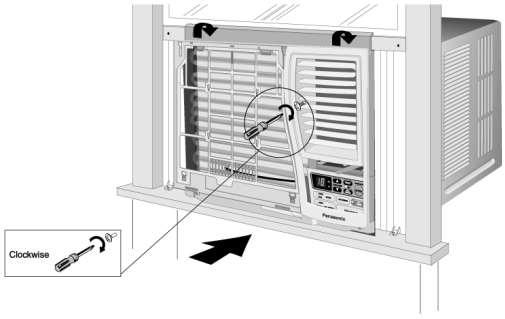


11.9. Installation of the front frille

Depending upon the location of the AC outlet, route the AC cord to either the left or right side while installing the front grille.

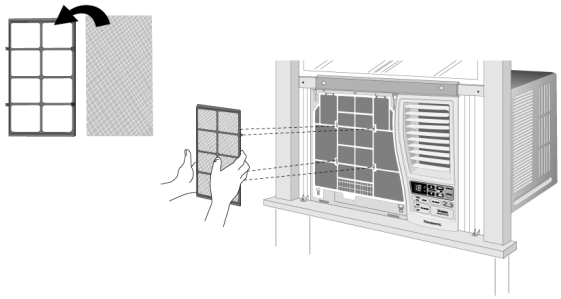


1. Place the front grille on the cabinet first.
2. Secure the front grille to the main chassis using screw.



11.10. Insert the e+filter

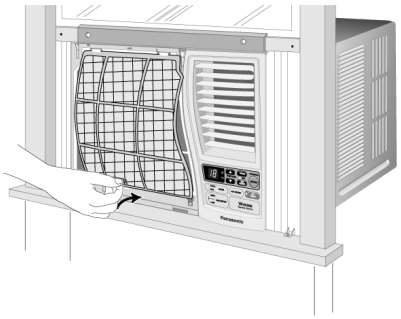
- Attach the e+filter (part no. CZ-SF6p) to the frame.
- Slot in the e+filter and the frame (part no. CZ-SFW6P) to the front grille.



- The e+ filter and the frame can be obtained separately from your nearest servicentre.

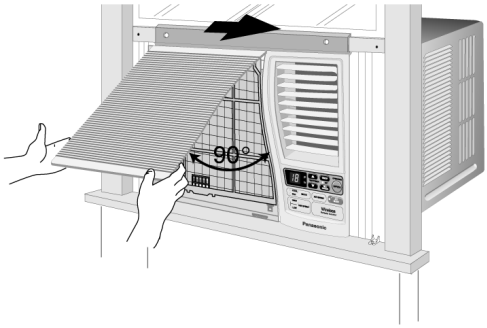
11.11. Insert the Air Filter

- Attach the air filter to the intake grille.



11.12. Place front intake Grille over the front grille

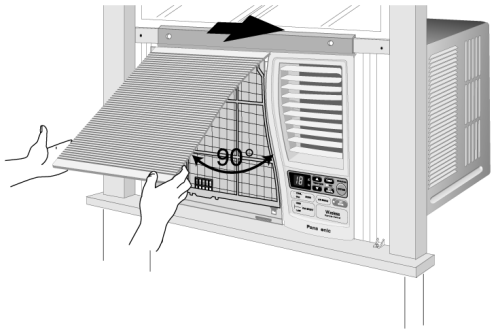
- Slide the front intake grille slightly to the right to reattach the tabs then push it down to close tight.



11.13. Removal the front intake grille

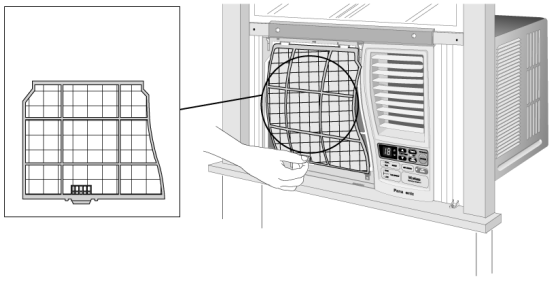
1. Remove the front intake grille.

   Pull up the front intake grille about 0° and slide it slightly to the left to unhook the tabs.

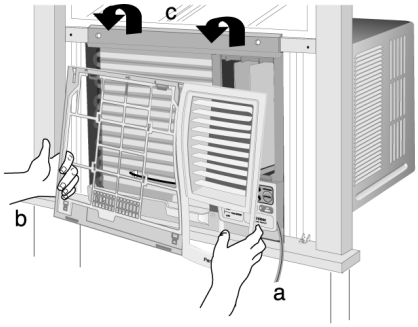


2. Remove the air filter.

   Tilt up and pull out the air filter by the holder.



3. Remove the front grille.
   a. At bottom right side of the front grille, press inward on cabinet near the power cord, and pull the grille outward to the right until right tabs releases.
   b. At the bottom left side, push inward on cabinet and pull the grille outward to the left to release the left tab.
   c. Slide the front grille upwards to free the two top tabs at the top of the cabinet.

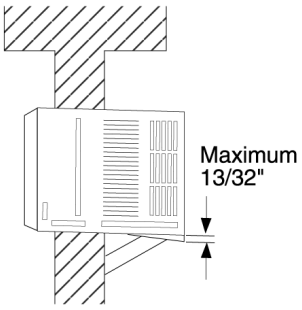


11.14. How to attach the Drain Pan (Optional)

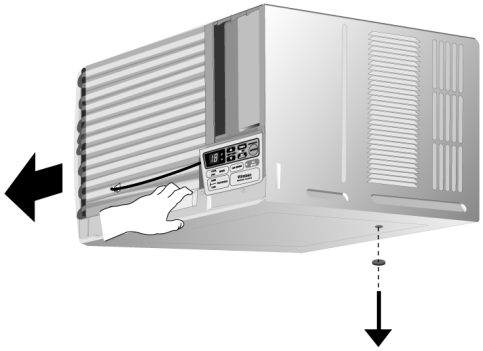
Condensed water drainage.

This air condtioner employs a “Singer -Up System“ which is designed to splash he condensed water on the condensed coil for maximum cooling efficiency, thus producing a splashing sound. If the splashing sound annoys you, you can provide an outside drainage by using the following procedure which may, however, cause a small loss of performance.

NOTE: The cabinet should be installed tilted slightly lower to the rear for necessary condensate drainage. (Max. 13/32”)



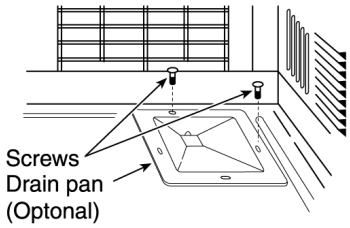
1. Remove the rubber plug and slide the chassis out from the cabinet



2. Install the optional drain pan (part no. CWH40175). Install the drain pan at the right corner of the cabinet using 2 screws (part no. CWG86C3733).

   Note: The drain pan (part no. CWH40175) can be obtained from nearest servicentre.

INTERNAL VIEW

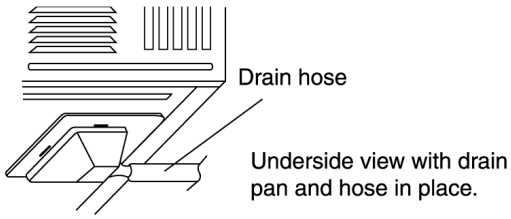


3. Connect a drain hose (optional).

   Fit the drain hose to the drain pan.

   Note: Drain hose or tubing can be purchased locally to satisfy your particular needs.

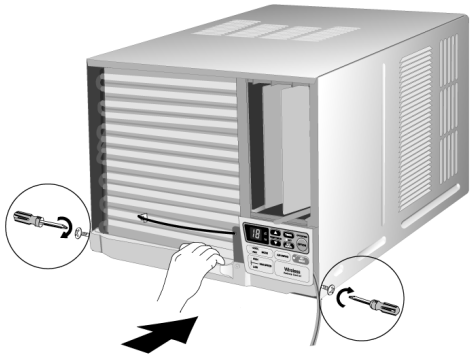
EXTERNAL VIEW



4. Slide the chassis back into the cabinet.

   Reinstall the cabinet screws.

   Secure the cabinet to chassis by using screws.



12 Care and Maintenance

⚠ Caution:
Always turn off the air conditioner and the main power supply before unplugging the power cord to clean the unit.
Switch off the power supply if the unit is not going to be used for a long period of time.

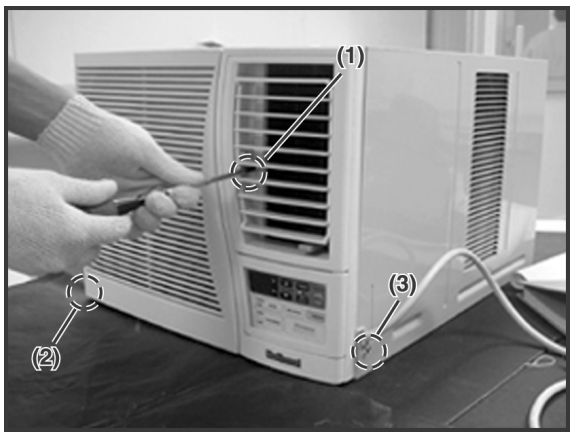
- Clean the cabinet, front grille with a mild soap or detergent and lukewarm water.
- The front intake grille can be easily removed for cleaning purposes (refer **Removal of Front Grille** procedures). Gently wash it with water and a sponge.
- The filter can be easily cleaned using a vacuum cleaner. Vacuum the front of the filter and then wash the rear with water. If it is badly soiled, wash with a mild household detergent.
- Do not clean with benzene, thinner, scouring powder or cloth soaked in caustic chemicals.
- If the unit is extremely dirty, heat transfer is less efficient and the unit may not cool effectively. Contact Shun Hing Electric Service Centre Ltd. for an annual check. (Annual check is not covered under warranty)
- If the air filter becomes clogged with dust, the cooling capacity will drop, and 6% of the electricity used to operate the air conditioner will be wasted.

NOTE
Do not dry the front panel or the air filter in direct sunlight. (Exposure to direct sunlight may discolour or deform the panel.)

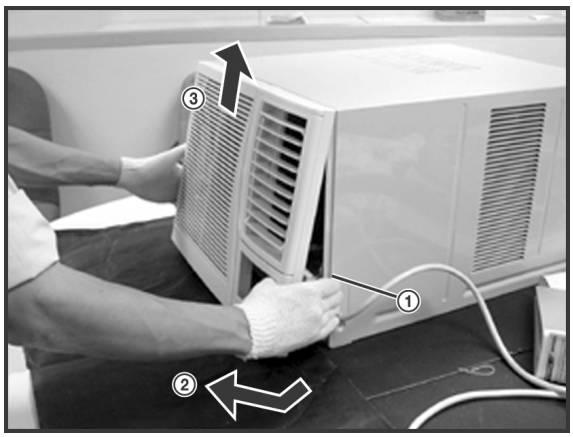
13 Servicing Information

13.1. Control Board Removal Procedure

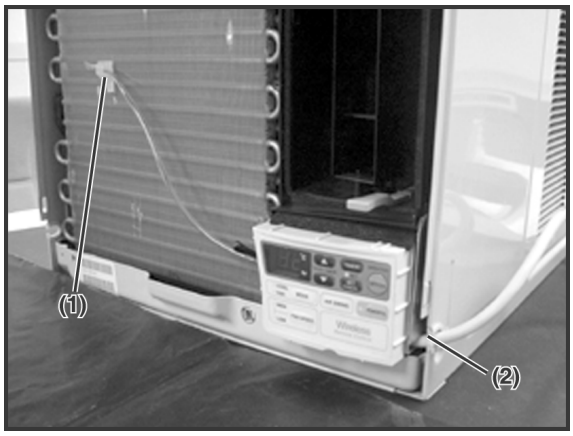
1. Remove the screws in front and both sides of the chassis as indicated (1), (2) and (3).



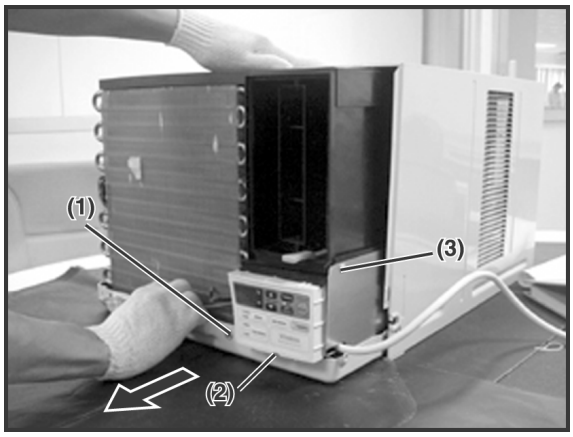
2. Release the tabs at both sides of the front grille (push in the cabinet and pull out the grille).Then, pull up the grille as to release another two tabs at the top side of the grille.



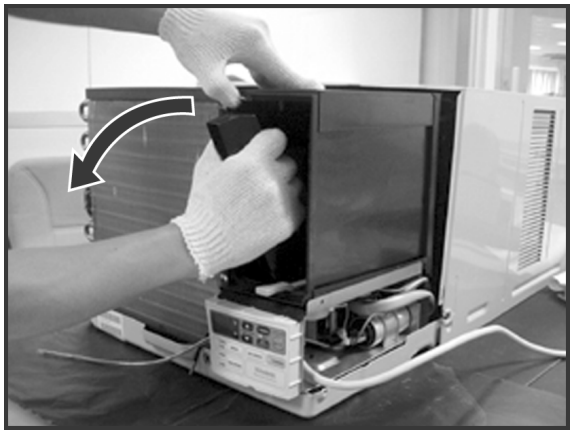
3. Release the temperature sensor from its holder (1) and pull out the wire from the bushing at the cabinet (2).



4. Pull out the unit from cabinet by holding the hand grip at the base pan. Remove two screws in front of the control board (1) & (2). Then, remove screw at the side of control board (3) and take out the control board side plate.

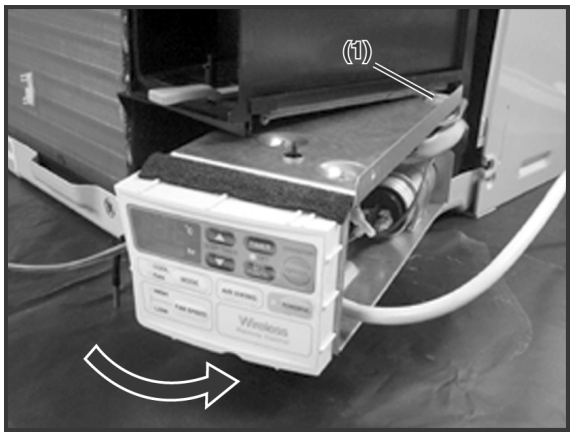


5. Hold the horizontal vane and pull it out from the top side and get it out from its position.

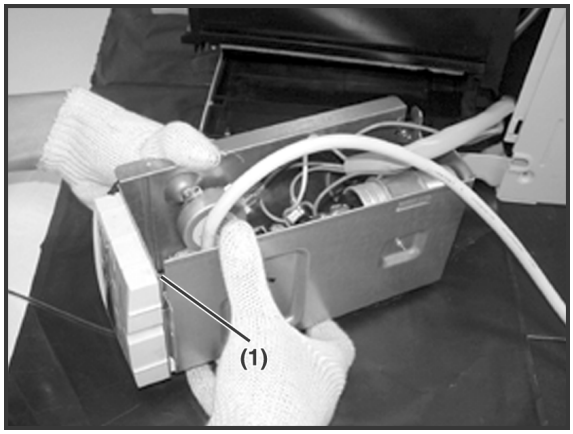


6. Then, remove the shaft at the bottom of the compartment.

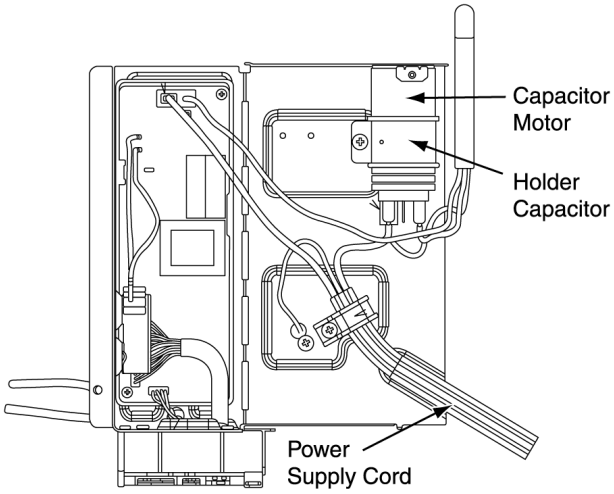
7. Pull out the control board as shown in figure. Then remove the screw as indicated (1).



8. Release a hook as shown in figure (1) to open up the control board.



- Control Board part location.

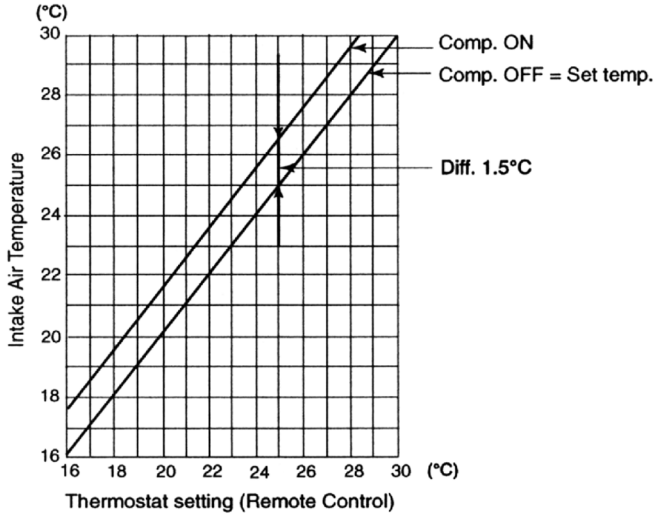


14 Technical Data

14.1. Thermostat Characteristics.

14.1.1. CW-XC100VK & CW-XC120VK

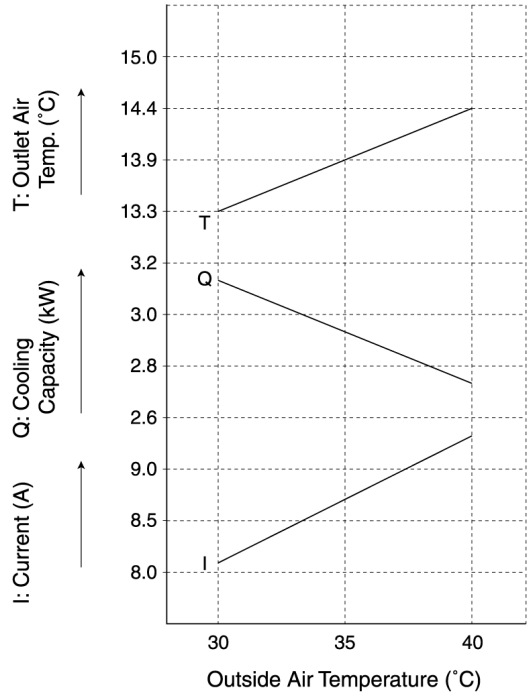
- Mechanical Thermostat (Cooling)



14.2. Operation Characteristics

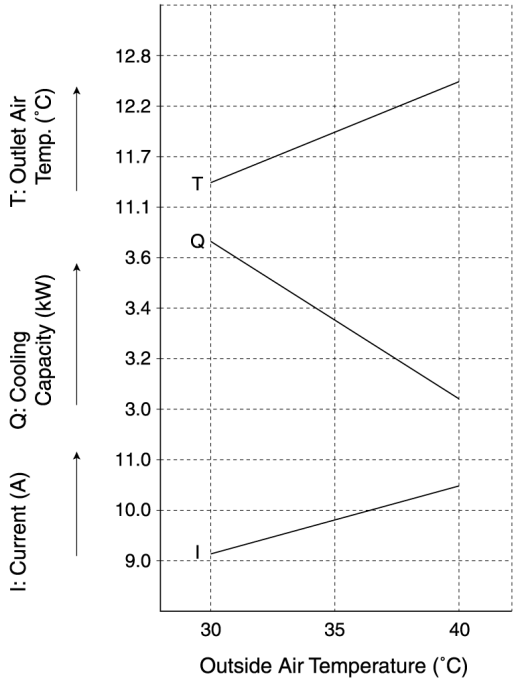
14.2.1. CW-XC100VK

- Cooling Characteristics Vs. Outdoor Temperature.



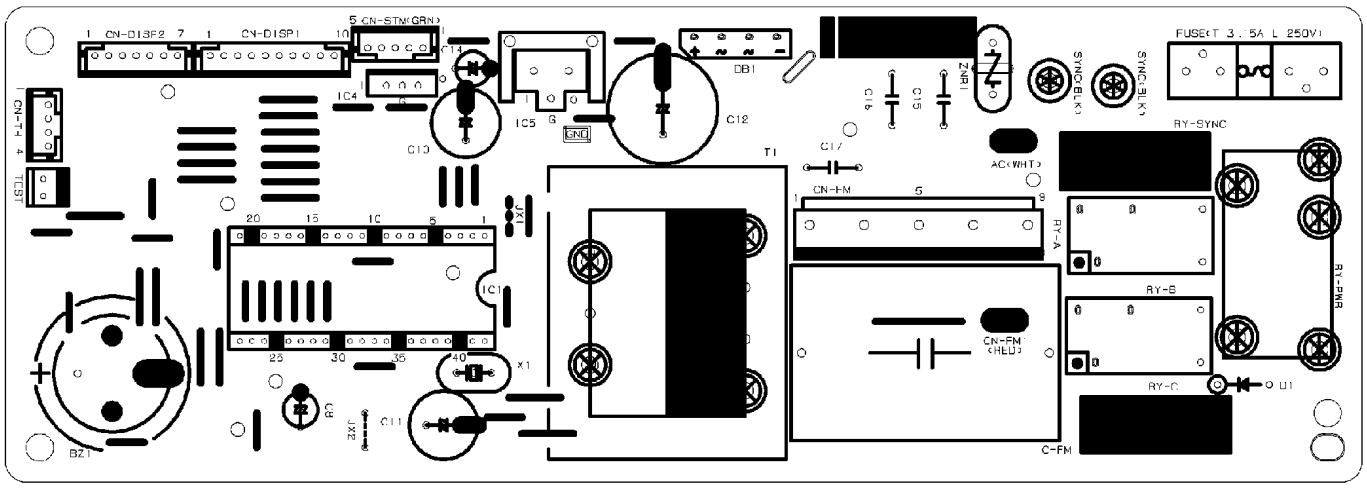
14.2.2. CW-XC120VK

- Cooling Characteristics Vs. Outdoor Temperature.

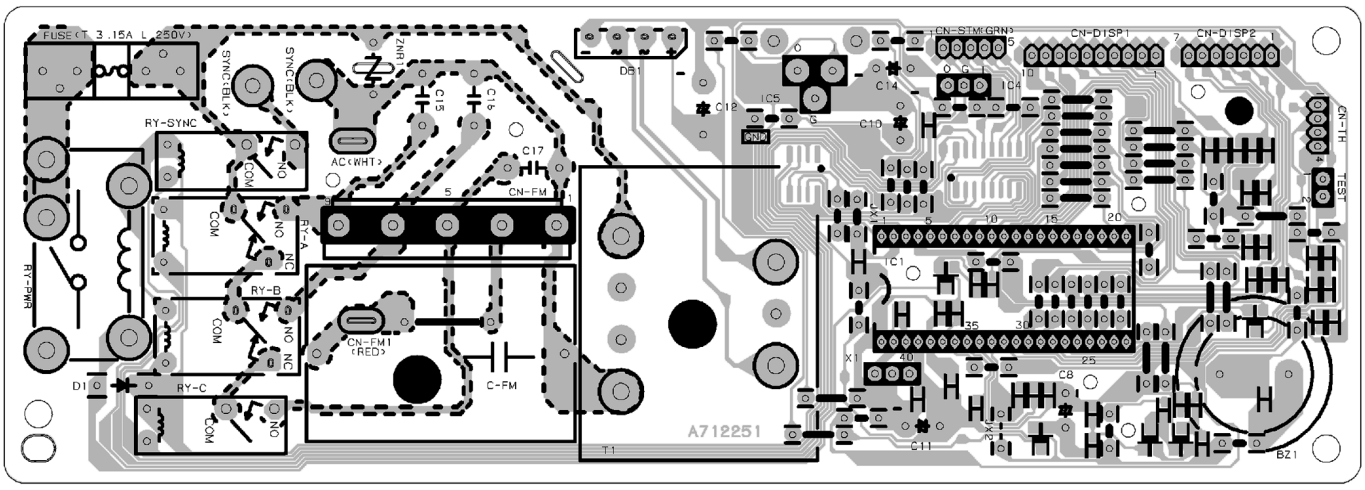


15 Electronic Circuit / Main

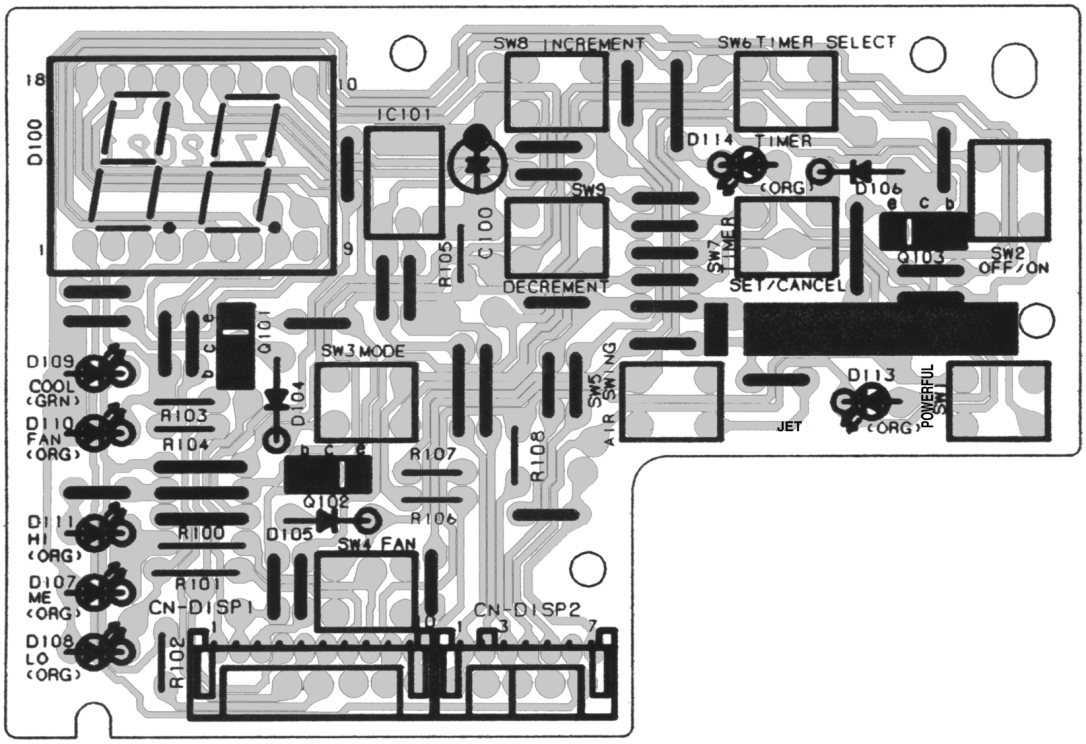
15.1. Top View



15.2. Bottom View

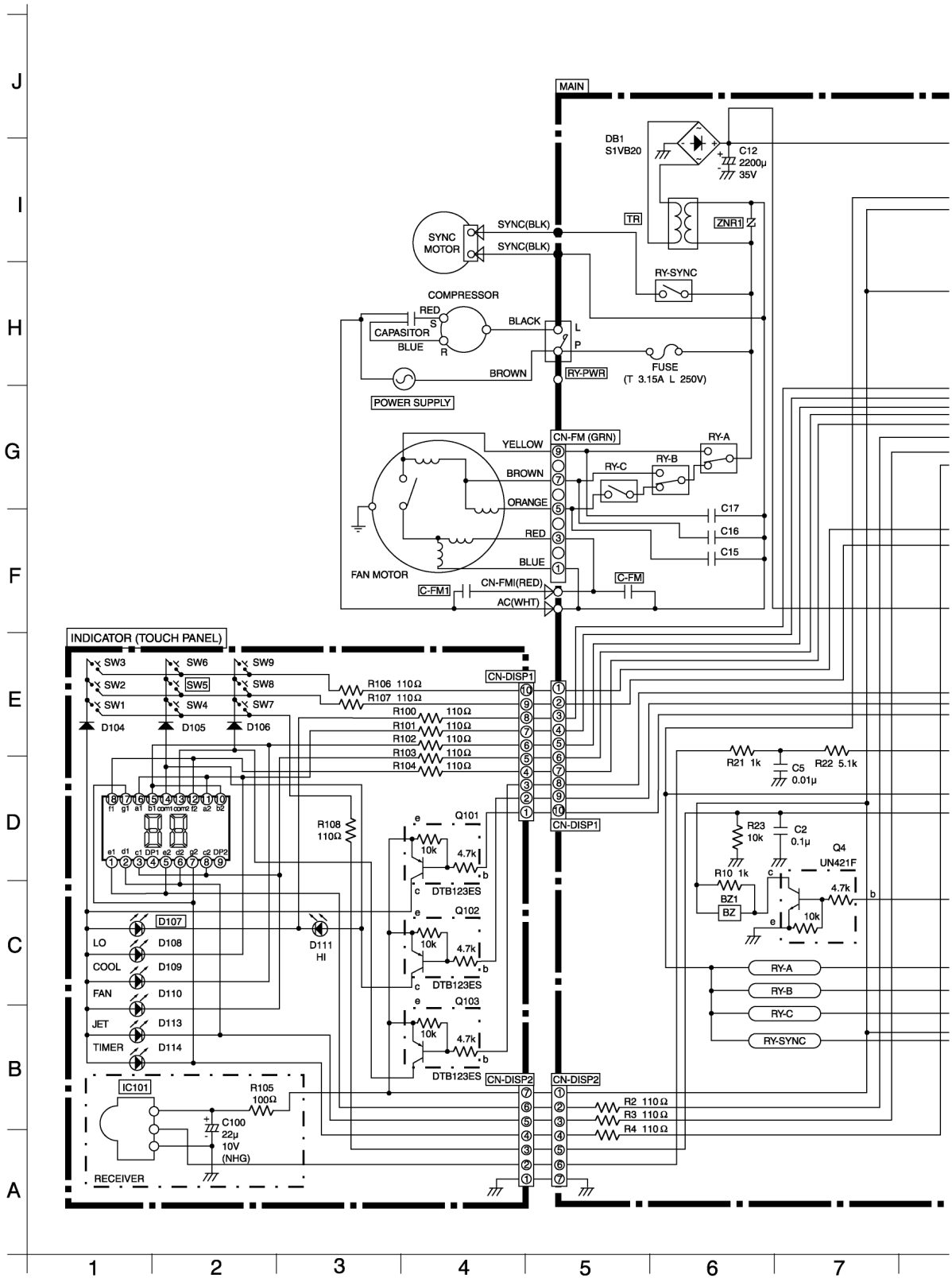


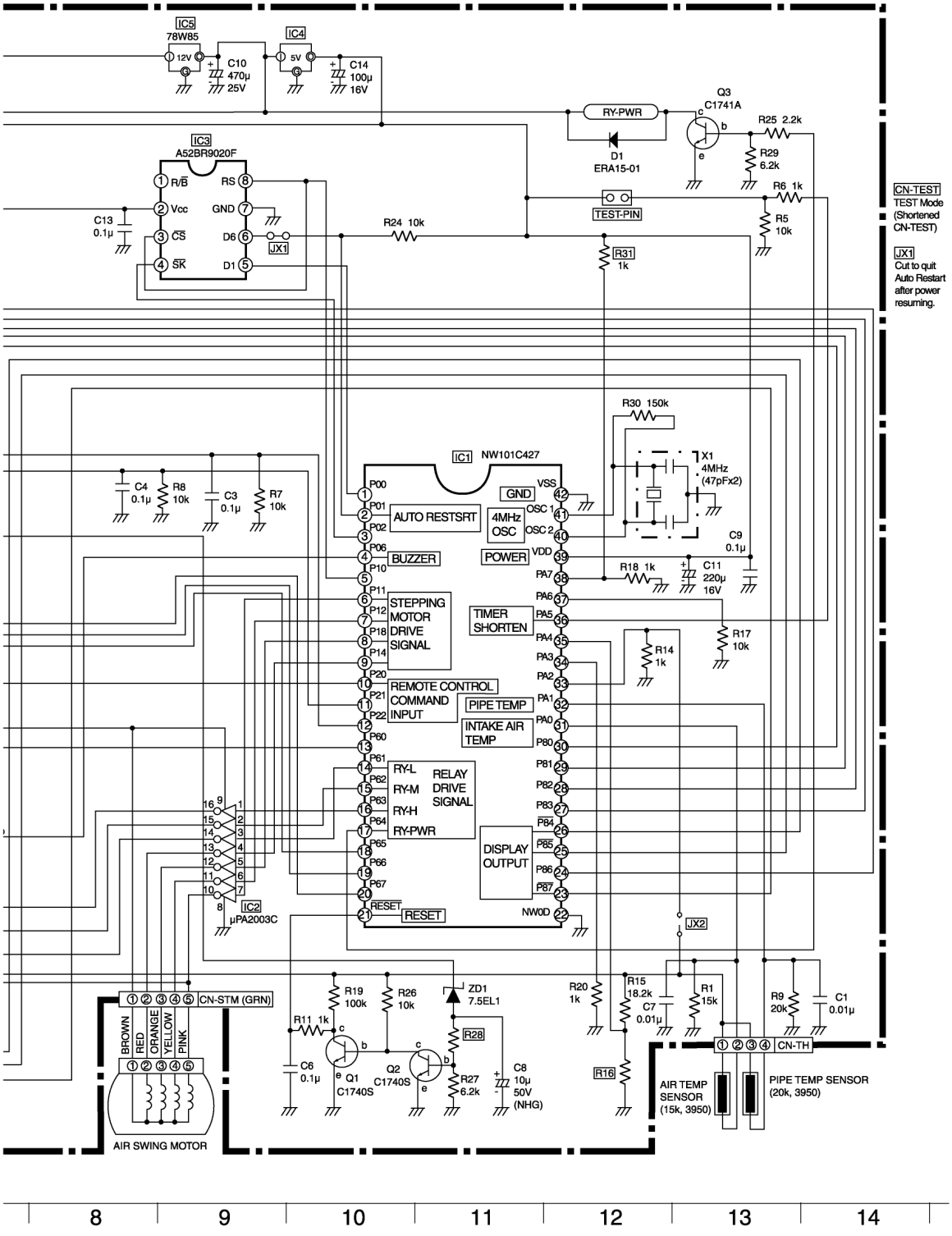
16 Electronic Circuit / Indicator Complete



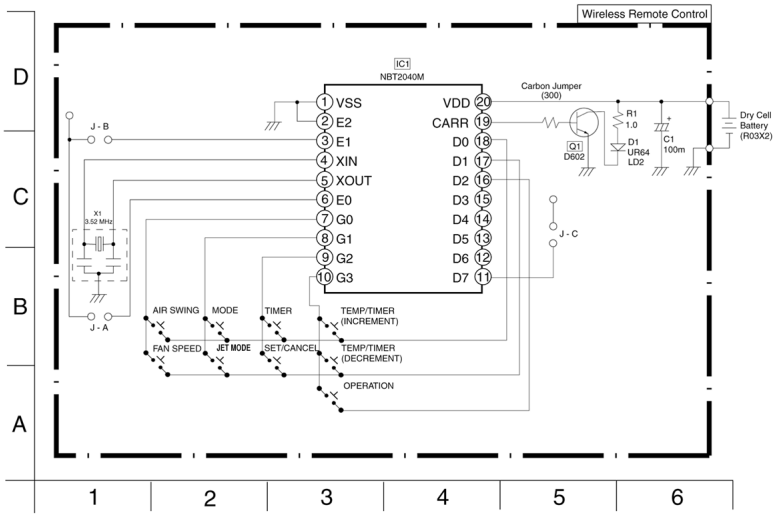
17 Electronic Circuit Diagram

17.1. Electronic Circuit Diagram (Main Unit)




IC5
78W85
12V
C10
470µ
25V
IC4
5V
C14
100µ
16V
IC3
A52BR9020F
R/B
Vcc
CS
SK
RS
GND
D6
D1
JX1
C13
0.1µ
R24 10k
RY-PWR
D1
ERA15-01
Q3
C1741A
R25 2.2k
R29
6.2k
R6 1k
R5
10k
TEST-PIN
R31
1k
CN-TEST
TEST Mode
(Shortened
CN-TEST)
JX1
Cut to quit
Auto Restart
after power
resuming.
R30 150k
IC1
NW101C427
X1
4MHz
(47pFx2)
C4
0.1µ
R8
10k
C3
0.1µ
R7
10k
P00
P01
P02
P06
P10
P11
P12
P18
P14
P20
P21
P22
P60
P61
P62
P63
P64
P65
P66
P67
RESET
AUTO RESTSRT
BUZZER
STEPPING
MOTOR
DRIVE
SIGNAL
REMOTE CONTROL
COMMAND
INPUT
RY-L
RY-M
RY-H
RY-PWR
RELAY
DRIVE
SIGNAL
DISPLAY
OUTPUT
RESET
GND
4MHz
OSC
POWER
TIMER
SHORTEN
PIPE TEMP
INTAKE AIR
TEMP
VSS
OSC 1
OSC 2
VDD
PA7
PA6
PA5
PA4
PA3
PA2
PA1
PA0
P80
P81
P82
P83
P84
P85
P86
P87
NWOD
C9
0.1µ
R18 1k
C11
220µ
16V
R17
10k
R14
1k
IC2
µPA2003C
JX2
CN-STM (GRN)
BROWN
RED
ORANGE
YELLOW
PINK
AIR SWING MOTOR
R19
100k
R26
10k
ZD1
7.5EL1
R11 1k
R28
C6
0.1µ
Q1
C1740S
Q2
C1740S
R27
6.2k
C8
10µ
50V
(NHG)
R20
1k
R15
18.2k
C7
0.01µ
R1
15k
R9
20k
C1
0.01µ
R16
CN-TH
AIR TEMP
SENSOR
(15k, 3950)
PIPE TEMP SENSOR
(20k, 3950)
8
9
10
11
12
13
14

17.2. Electronic Circuit Diagram (Remote Control)



17.3. How to use electronic circuit diagram

Before using the circuit diagram, read the following carefully.

- Voltage measurement

  Voltage has been measured with a digital tester when the fan is set at high fan speed under the following conditions without setting the timer.

  Use them for servicing.

  Voltage indication is in red.

	Intake air temperature	Temperature setting	Discharge air temperature	Pipe temperature
Cooling	27°C	16°C	17°C	15°C

- Indications for resistance
  - a. K...KΩ
    b. W...WATT
    c. M...MΩ
    d. Not indicated...1/4W
  - Type

Not indicated	Carbon resistor Tolerance (+-) 5%
	Metal oxide resistor Tolerance (+-) 1%

- Indications for capacitor

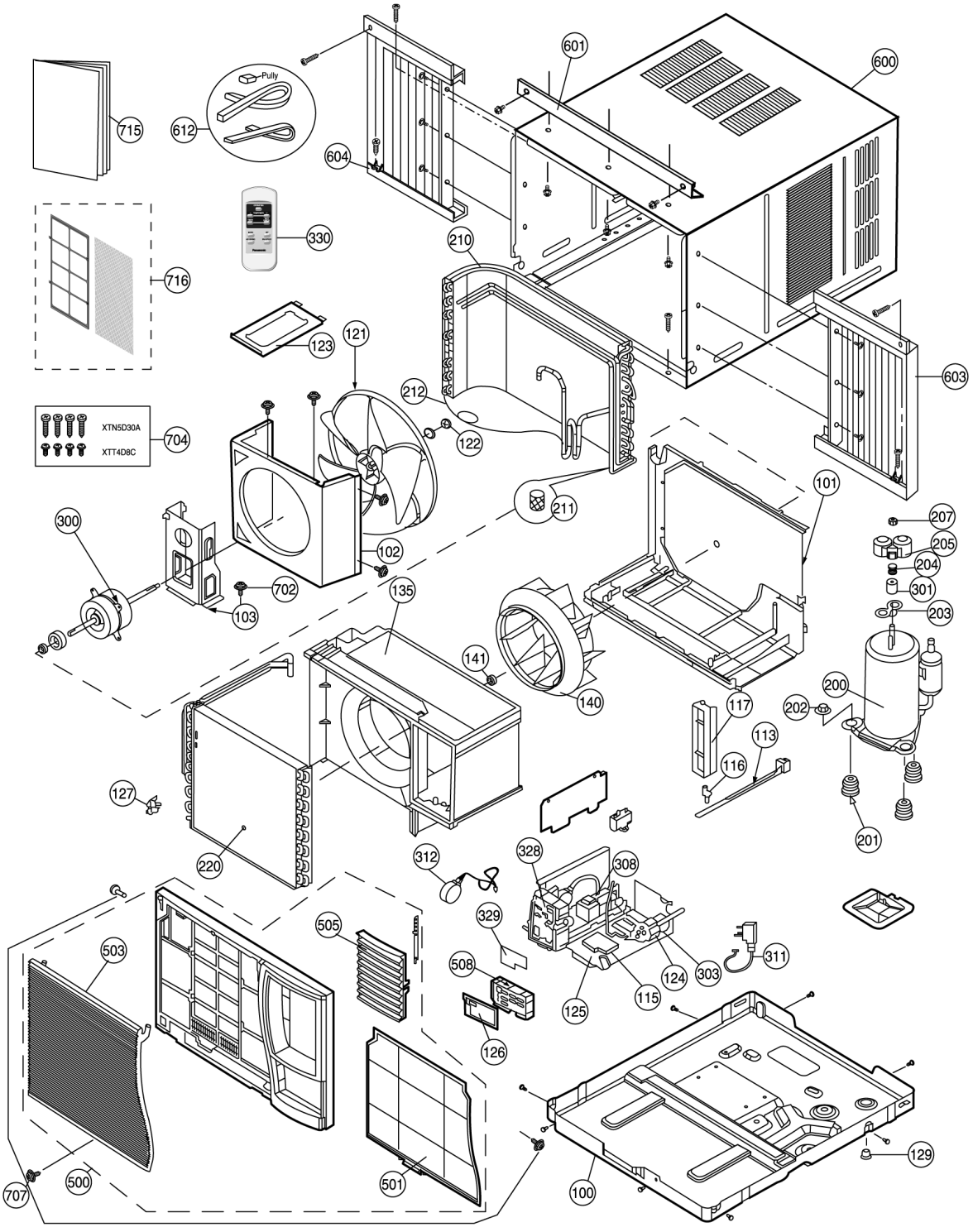
Unit	– µ...µF – P...pF
Type	– Not indicated...ceramic capacitor – (S)...S series aluminium electrolytic capacitor – (Z)...Z series aluminium electrolytic capacitor – (SU)...SU series aluminium electrolytic capacitor – (K)...K series aluminium electrolytic capacitor – (P)...P series polyester system – (SXE)...SXE series aluminium electrolytic capacitor – (SRA)...SRA series aluminium electrolytic capacitor – (KME)...KME series aluminium electrolytic capacitor

- Diode without indication...MA165
- Circuit Diagram is subject to change without notice for further development.

17.4. Timer Table

Name	Time	Test Mode (Shortened CN-TEST pin)	Remarks
Hour Timer	1 hr. 10 min. 1 min.	1 min. 10 sec. 1 sec.	
Time delay Safety Control	2 min. 58 sec.	0 sec.	
Forced Operation	60 sec.	0 sec.	
Time Save Control	7 min.	42 sec.	
Freeze Prevention Control	3 min.	0 sec.	
Compressor Reverse Rotation Detection	2 min.	0 sec.	
Starting Current Control	1.6 sec.	0 sec.	
Jet Mode Operation	15 min.	15 sec.	
Random Auto Restart Control	0 ~ 62 sec.	0 ~ 6.2 sec.	Add value to Time Delay Safety Control.

18 Exploded View



(Note)

- The above exploded view is for the purpose of parts disassembly and replacement.
- The non-numbered parts are not kept as standard service parts.

19 Replacement Part List

Ref. No.	Part Name & Description	Qty.	CW-XC100VK	CW-XC120VK	Remarks
100	Base Pan Complete	1	CWD52K1048A	<-----	
101	Bulkhead Complete	1	CWD531010	<-----	
102	Air Guide - Propeller Fan	1	CWD311015	<-----	
103	Bracket - Fan Motor	1	CWD541046	<-----	
113	Ventilation Lever	1	CWH221005	<-----	
115	Control Board (Indicator)	1	CWH102142	<-----	
116	Connecting Bar - Air Swing Vanes	1	CWE261039	<-----	
117	Vane - Air Swing	1	CWE241094	<-----	
121	Propeller Fan	1	CWH001011	<-----	
122	Nut - Propeller Fan	1	CWH56032	<-----	
123	Holder - Air Swing Motor	1	CWD911188	<-----	
124	Holder - Capacitor (Compressor)	1	CWH30133	<-----	
125	Control Board (Main)	1	CWH102139	<-----	
126	Control Board (Front)	1	CWH102143	<-----	
127	Holder - Sensor	1	CWH32142	<-----	
129	Drain Plug - Base Pan	1	CWH4611062	<-----	
135	Air Guider - Blower Wheel	1	CWD32C1024	<-----	
140	Turbo Fan	1	CWH031006	<-----	
141	Nut - Turbo Fan	1	CWH56053	<-----	
200	Compressor	1	CWB09623	CWB09624	
201	Bushing - Compressor Mount	3	CWH50055	<-----	
202	Nut - Compressor Mount	3	CWH4582065	<-----	
203	Packing - Terminal Cover	1	CWB811008	<-----	
204	Holder - Overload Protector	1	CWH7041200	<-----	
205	Terminal Cover - Compressor	1	CWH7070222U	<-----	
207	Nut - Terminal Cover	1	CWH7080300	<-----	
210	Condenser	1	CWB32C1184-1	CWB32C1178-1	
211	Strainer	2	CWB11101	<-----	
212	Capillary Tube	1	CWB152117	CWB152155	
220	Evaporator	1	CWB30C1181	CWB30C1182	
300	Fan Motor	1	CWA951216	CWA951215	
301	Overload Protector	1	CWA12126	CWA12126	
303	Capacitor - Compressor	1	CWA312066 (40µF/250V)	CWA312067 (45µF,250V)	
308	Sensor Complete	1	CWA50C2096	<-----	
311	Power Supply Cord	1	CWA20C2242	<-----	
312	Air Swing Motor	1	CWA981062	<-----	
328	Electronic Controller (Main)	1	CWA742060	<-----	
329	Electronic Controller (Indicator)	1	CWA742974	<-----	
330	Remote Control Complete	1	CWA75C2029	<-----	
500	Front Grille Complete	1	CWE11C2564	<-----	
501	Air Filter	1	CWD001100	<-----	
503	Intake Grille	1	CWE221053	<-----	
505	Vane	1	CWE241093	<-----	
508	Control Panel	1	CWE312285	<-----	
600	Cabinet Complete	1	CWE00C1049	<-----	
601	Top Angle	1	CWD62209A	<-----	
603	Expandable Panel (Right)	1	CWH36C1011	<-----	
604	Expandable Panel (Left)	1	CWH36C1012	<-----	
612	Aux. Material - Installation	1	CWG86C401	<-----	
702	Screw - Bracket Fan Motor	4	CWH55101	<-----	
704	Screw - Bag Complete (Installation)	4	CWH82C1117	<-----	
707	Screw - Front Grille Mount	1	CWH82C1118	<-----	
715	Operating Instructions	1	CWF563665	<-----	
716	Frame - E+Filter	1	CWD931046	<-----	

- The above parts are kept for seven years in accordance with MEI service policy.
- However, longer lead time will be taken in supplying the non-numbered parts.
- All parts are supplied from MAICO, Malaysia (Vendor Code: 061).
- (A): Optional part.
- (B): Supplied through sales route.